

PATENT

Atty Docket No.: 100110202-1
App. Ser. No.: 10/062,443

IN THE CLAIMS:

Please find below a listing of all of the pending claims. The statuses of the claims are set forth in parentheses.

1. (Currently amended) A system for cooling at least one computer component, said system comprising:

a plurality of cold plates adapted to transfer heat from a plurality of computer components to a cooling fluid, wherein the cooling fluid flows through respective interiors of the plurality of cold plates;

a supply line to supply said cooling fluid into, and out from, said plurality of cold plates; and

~~a housing having one or more racks configured to support said plurality of computer components, said one or more racks further configured to support said plurality of cold plates in thermal communication with said plurality of computer components;~~

a heat exchanger adapted to transfer heat from the cooling fluid to a medium, to thereby cool the cooling fluid;

a chilled medium supply, wherein the heat exchanger is configured to receive chilled medium from the chilled medium supply; and

a controllable valve configured to modulate the supply of medium from the chilled medium supply to thereby vary the transfer of heat from the cooling fluid to the chilled medium.

Claim 2. (Canceled)

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3. (Previously Presented) The system of claim 1, further comprising:
a plurality of controllable valves positioned along the supply line to control the flow of cooling fluid into each of the plurality of cold plates.

4. (Previously Presented) The system of claim 1, further comprising:
an electronic controller configured to control the supply of cooling fluid into each of the plurality of cold plates.

5. (Previously Presented) The system of claim 4, wherein said electronic controller is configured to modulate the cooling of at least one of said computer components based upon the cooling fluid supplied to each of the plurality of cold plates.

Claim 6. (Canceled)

7. (Currently amended) The system of claim ~~[[6]]~~¹, wherein said controllable valve is adapted to modulate a supply of water medium from the chilled ~~water-medium~~ supply in response to instructions from an electronic controller.

8. (Previously Presented) The system of claim 4, further comprising:
a plurality of controllable valves positioned along the supply line to control the flow of cooling fluid into the plurality of cold plates;
wherein the electronic controller is configured to operate the plurality of controllable valves to control the supply of cooling fluid into each of the plurality of cold plates.

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9. (Original) The system of claim 1, further comprising:

a fluid reservoir attached to said supply line; and

one or more pumps operable to circulate the fluid.

10. (Previously Presented) The system of claim 4, further comprising:

a temperature gauge for detecting temperature of at least one of the cooling fluid, a cold plate, and the at least one computer component, and wherein the electronic controller is configured to control the supply of cooling fluid into each of the plurality of cold plates based upon the temperature detected by the temperature gauge.

11. (Previously Presented) The system of claim 4, further comprising:

a sensor configured to measure the power consumption of the at least one computer component; and

wherein the electronic controller is configured to control the supply of cooling fluid into each of the plurality of cold plates based upon the power consumption of the at least one computer component measured by the sensor.

12. (Currently amended) A system for cooling a plurality of computer components, said system comprising:

a plurality of means for absorbing heat from the plurality of computer components;

means for holding the plurality of computer components in thermal attachment with the plurality of means for absorbing heat;

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means for supplying cooling fluid into the plurality of means for absorbing heat,
wherein the means for supplying cooling fluid is configured to variably supply cooling fluid
into the plurality of means for absorbing heat;

means for cooling the cooling fluid, said means for cooling including a chilled
medium; and

means for modulating a supply of the chilled medium, wherein the means for
modulating is configured to vary the transfer of heat from the cooling fluid to the chilled
medium.

13. (Previously Presented) The system of claim 12, wherein said means for
supplying cooling fluid further comprises means for controlling the amount of cooling fluid
supplied to each of the plurality of means for absorbing heat.

14. (Previously Presented) The system of claim 13, further comprising:
means for electronically controlling the means for controlling the amount of cooling
fluid supplied to each of the plurality of means for absorbing heat.

Claims 15- 17. (Canceled).

18. (Previously Presented) The system of claim 12, further comprising:
means for monitoring temperature.

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19. (Previously Presented) The system of claim 12, further comprising:
means for monitoring power consumption of the plurality of computer components.

20. (Currently amended) A method for cooling at least one computer component,
said at least one computer component being thermally attached to a cold plate, said method
comprising:

supplying cooling fluid into the cold plate from a supply line for supplying cooling
fluid into a plurality of cold plates;

varying the amount of cooling fluid supplied into the cold plate based upon at least
one detected condition; and

circulating the cooling fluid through the cold plate and out of the cold plate such that
heat is absorbed from the at least one computer component into the cooling fluid circulating
in the cold plate;

circulating the cooling fluid through a heat exchanger such that the heat exchanger
absorbs heat from the cooling fluid to thereby cool the cooling fluid; and

modulating the operation of the heat exchanger to vary a supply of a medium
configured to absorb heat from the cooling fluid to thereby vary a level of heat exchange
between the cooling fluid and the heat exchanger.

Claim 21. (Canceled)

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22. (Previously Presented) The method of claim 20, wherein the step of varying the amount of cooling fluid supplied into the cold plate further comprises using one or more valves to vary the amount of cooling fluid supplied to the cold plate.

23. (Previously Presented) The method of claim 20, further comprising monitoring a temperature of at least one of the cooling fluid, the cold plate, and the at least one computer component; and

wherein the step of varying the amount of cooling fluid supplied into the cold plate further comprises varying the amount of cooling fluid supplied into the cold plate based upon the monitored temperature.

24. (Previously Presented) The method of claim 20, further comprising: monitoring the power consumption of the at least one computer component; and wherein the step of varying the amount of cooling fluid supplied into the cold plate further comprises varying the amount of cooling fluid supplied into the cold plate based upon the monitored power consumption.

25. (Previously Presented) The method of claim 20, further comprising anticipating a level of heat generation by the at least one computer component; and wherein the step of varying the amount of cooling fluid supplied into the cold plate further comprises varying the amount of cooling fluid supplied into the cold plate based upon the anticipated heat generation level.

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Claim 26. (Canceled)

27. (Previously Presented) The method of claim 20, further comprising
detecting the number of the at least one computer component;
monitoring the operation of the at least one computer component; and
wherein the step of varying the amount of cooling fluid supplied into the cold plate
further comprises varying the amount of cooling fluid supplied into the cold plate based upon
the monitored operation of the at least one computer component.

28. (Previously Presented) The method of claim 20, wherein the at least one
computer component comprises a plurality of computer components thermally attached to a
plurality of cold plates, said method further comprising:
supplying cooling fluid to each of the plurality of cold plates; and
individually varying the amount of cooling fluid supplied into each of the plurality of
cold plates.

29. (Previously Presented) The method of claim 28, wherein the step of individually
varying the amount of cooling fluid supplied further comprises manipulating a plurality of
valves positioned along the supply line to individually vary the amount of cooling fluid
supplied to each of the plurality of cold plates.